Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (Original): A television (TV) tuner comprising:

a first preamp stage for amplifying and filtering a received RF signal within a first frequency range;

a second preamp stage for amplifying and filtering the received RF signal within a second frequency range;

a first mixer being selectively coupled to either the first preamp stage or the second preamp stage according to a mode selection signal for generating a first intermediate-frequency signal;

a first band-pass filter being selectively coupled to the first mixer according to the mode selection signal for filtering the first intermediate-frequency signal;

a second band-pass filter being selectively coupled to the first mixer according to the mode selection signal for filtering the first intermediate-frequency signal; and

a second stage being coupled to the first band-pass filter and the second band-pass filter for generating an output signal.

Claim 2 (Original): The TV tuner of claim 1, further comprising a first local oscillator for providing a first local oscillating signal to the first mixer, wherein the frequency of the first local oscillating signal is variable and is determined according to the frequency range of the received RF signal.

Claim 3 (Original): The TV tuner of claim 2, wherein the first mixer is a harmonic mixer and the first local oscillating signal further includes a first reference signal and a

second reference signal being the first reference signal phase shifted by 90 degrees.

Claim 4 (Original): The TV tuner of claim 1, wherein the second stage includes a second mixer for mixing the first intermediate-frequency signal to generate a second intermediate-frequency signal.

Claim 5 (Original): The TV tuner of claim 4, further comprising a second local oscillator for providing a second local oscillating signal to the second mixer, wherein the frequency of the second local oscillating signal is fixed and is determined according to the frequency range of the received RF signal.

Claim 6 (Original): The TV tuner of claim 5, wherein the second mixer is a harmonic mixer and the second local oscillating signal further includes a third reference signal and a fourth reference signal, the fourth reference signal being the third reference signal phase shifted by 90 degrees.

Claim 7 (Original): The TV tuner of claim 1, wherein the second stage includes a second mixer for mixing the first intermediate-frequency signal to generate an in-phase baseband signal and a third mixer for mixing the first intermediate-frequency signal to generate a quadrature-phase baseband signal.

Claim 8 (Original): The TV tuner of claim 7, wherein the second stage further includes a second local oscillator for providing a third local oscillating signal to the second mixer and a fourth local oscillating signal to the third mixer, wherein the frequency of the third and the fourth local oscillating signals is fixed and is determined according to the frequency range of the received RF signal and the fourth local oscillating signal is the third local oscillating signal phase shifted by 90 degrees.

Claim 9 (Original): The TV tuner of claim 8, wherein the second and the third mixers are harmonic mixers, the third local oscillating signal further includes a fifth reference signal and a sixth reference signal, and the fourth local oscillating signal further includes a seventh reference signal and a eighth reference signal, wherein the sixth reference signal is the fifth reference signal phase shifted by 90 degrees, the seventh reference signal is the fifth reference signal phase shifted by 45 degrees, and the eighth reference signal is the fifth reference signal phase shifted by 135 degrees.

Claims 10-12 (Cancelled)

Claim 13 (New): A method of processing a received RF signal by a television (TV) tuner, comprising:

generating a mode selection signal;

generating a first amplified signal by amplifying and filtering the received RF signal within a first frequency range when the mode selection signal indicates a first mode;

generating a second amplified signal by amplifying and filtering the received RF signal within a second frequency range when the mode selection signal indicates to a second mode;

generating a first intermediate-frequency signal according to the first amplified signal or the second amplified signal;

generating a first filtered signal by filtering the first intermediate-frequency signal according to a first center frequency when the mode selection signal indicates to the first mode;

generating a second filtered signal by filtering the first intermediate-frequency signal according to a second center frequency when the mode selection signal indicates to the second mode; and

generating an output signal according to the first filtered signal or the second

filtered signal.

Claim 14 (New): The method of claim 13, wherein the step of generating the first intermediate-frequency signal comprises:

mixing the first amplified signal or the second amplified signal according to a first local oscillating signal and thereby generating the first intermediate-frequency signal.

Claim 15 (New): The method of claim 13, wherein the step of generating the first intermediate-frequency signal comprises:

harmonically mixing the first amplified signal or the second amplified signal according to a plurality of reference signals and thereby generating the first intermediate-frequency signal.

Claim 16 (New): The method of claim 13, wherein the step of generating the output signal comprises:

mixing the first filtered signal or the second filtered signal according to a second local oscillating signal and thereby generating the output signal.

Claim 17 (New): The method of claim 16, wherein the frequency of the second local oscillating signal is fixed.

Claim 18 (New): The method of claim 13, wherein the step of generating the output signal comprises:

harmonically mixing the first filtered signal or the second filtered signal according to a plurality of reference signals and thereby generating the output signal.

Claim 19 (New): The method of claim 13, wherein the output signal comprises an

in-phase baseband signal and a quadrature-phase baseband signal.

Claim 20 (New): The method of claim 13, wherein the first mode is a digital TV mode.

Claim 21 (New): The method of claim 20, wherein the second mode is a satellite TV mode.

Claim 22 (New): The method of claim 13, wherein the first frequency range is different from the second frequency range.

Claim 23 (New): The method of claim 22, wherein the first center frequency is different from the second center frequency.